AMENDMENTS TO THE CLAIMS

The following listing of the claims replaces all prior versions and listings of the claims in relation to the present application:

1. (original) A method of triggering an imaging system, comprising:
sensing physiological activity;
isolating an event in the physiological activity; and
predicting a future occurrence of the event for triggering an imaging system.

2. (original) The method of claim 1, wherein sensing physiological activity comprises mechanically sensing internal physiological activity.

3. (original) The method of claim 1, wherein sensing physiological activity comprises non-intrusively sensing internal physiological activity.

4. (original) The method of claim 1, wherein sensing physiological activity comprises sensing motion of an internal organ of a subject.

5. (original) The method of claim 1, wherein sensing physiological activity comprises sensing a plurality of physiological parameters.

6. (original) The method of claim 1, wherein sensing physiological activity comprises sensing internal mechanical activity of a subject.

7. (original) The method of claim 6, wherein sensing internal mechanical activity comprises sensing cardiovascular activity of the subject.

8. (original) The method of claim 7, wherein sensing cardiovascular activity comprises sensing cardiac activity.

9. (original) The method of claim 6, wherein sensing internal mechanical activity comprises sensing respiratory activity of the subject.

10. (original) The method of claim 9, wherein sensing respiratory activity comprises sensing lung activity.

11. (original) The method of claim 1, wherein isolating the event comprises analyzing the physiological activity over a time interval.

12. (original) The method of claim 1, wherein isolating the event comprises isolating a desired activity from the physiological activity.

13. (original) The method of claim 12, wherein isolating the event comprises identifying cyclical patterns in the physiological activity.

14. (original) The method of claim 12, wherein isolating the event comprises separating the desired activity based on known motion characteristics of the desired activity.

15. (original) The method of claim 13, wherein isolating the event comprises filtering at least a portion of the cyclical patterns having frequencies outside of an expected frequency range for the desired activity.

16. (original) The method of claim 12, wherein isolating the event comprises identifying a desired phase in a cycle of the desired activity.

17. (original) The method of claim 16, wherein identifying the desired phase comprises identifying a peak amplitude in the cycle.

18. (original) The method of claim 1, wherein isolating the event comprises isolating a repeating point in a cyclical signal corresponding to an internal organ of a subject.

19. (original) The method of claim 18, wherein isolating the event comprises isolating a cardiovascular event of the subject.

20. (original) The method of claim 18, wherein isolating the event comprises isolating a respiratory event of the subject.

21. (original) The method of claim 1, wherein predicting the future occurrence comprises analyzing historical behavior of the physiological activity.

21. (original) The method of claim 1, wherein analyzing historical behavior comprises calculating an expected time interval between successive occurrences of the event.

22. (original) The method of claim 21, wherein predicting the future occurrence comprises determining a reference time based on a previous occurrence of the event and adding the expected time interval to provide a predicted time for the future event.

23. (original) The method of claim 1, wherein predicting the future occurrence comprises adjusting a predicted time to account for system response delays in the imaging system.

24. (original) The method of claim 1, comprising controlling timing of an image acquisition component of the imaging system.

25. (original) The method of claim 1, comprising acquiring a desired image of the event.

26. (original) The method of claim 25, wherein acquiring the desired image of the event comprises obtaining image data of a cardiac phase.

27. (original) The method of claim 1, comprising calculating a prediction error between a predicted time and an actual time of the future occurrence.

28. (original) The method of claim 27, comprising adjusting the predicted time based on the prediction error.

29. (original) The method of claim 27, wherein adjusting the predicted time comprises adjusting a predicted time interval between successive occurrences of the event based on the prediction error.

Claims 30-90 (cancelled)